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**Social Determinant Relationship with the Pre-eclampsia Events; A Research Cross Sectional****Hasnah<sup>1,2</sup>, Faizal<sup>1</sup>**<sup>1</sup>) Departement of Nursing, Faculty Medicine and Health Science , Universitas Islam Negeri Alauddin, Makassar, Indonesia<sup>2</sup>) Student of Program Doctoral Public Health, Hasanuddin University, Makassar, Indonesia[hasnah.nur@uin-alauddin.ac.id](mailto:hasnah.nur@uin-alauddin.ac.id)DOI: <http://doi.org/10.29080/jhsp.v3i3S.278>**Keywords**Pre-eclampsia;  
Age;  
Education;  
Occupation**Abstract**

*The main cause of maternal mortality is pre-eclampsia as many as 2 out of 5 maternal deaths. The severe complication ratio is 218/1000 and the mortality ratio of pregnant women is 198/1000. Hypertension accounted for 16 (28.1%) of 57 cases with severe complications both bleeding and abortion were 14 (24.6%). MDG's Targets 1 to 3 in social factors contribute to the incidence of pre-eclampsia. The aim of this is to analyze the research that has three social determinants which are age, education and occupation associated with the incidence of pre-eclampsia. Design of this Research was a survey with a cross-sectional study approach, which was carried out from June 23 to July 28, 2018 at the Bontomanai Health Center in Jeneponto District. A sample of 45 women who experienced pre-eclampsia from January 2016 to June 2018. Data analysis with Logistic Regression is used to link dependent and independent variables. Variable proximity is seen using Odds Ratio (OR). The division of the Pre-eclampsia category is divided into two categories, namely as many as 26 people (57.8%) and mild pre-eclampsia as many as 19 people (42.2%). There are three variables in this study, age, education and occupation. Of the three variables, only age is significant while education and employment have no significance. Therefore, it can be concluded that: Subsequent research into the relationship of health status, culture with pre-eclampsia.*

**Introduction**

Globally at least 585,000 women die each year due to complications of pregnancy and childbirth[1]. More than 70 percent of all maternal deaths are due to five main complicating factors, namely bleeding, infection, unsafe abortion, hypertension in pregnancy, and difficulty in giving birth. Most of the maternal deaths (61%) occur after birth, and the rest occur at the time of delivery[2].

Data from the Ministry of Health in 2015 states that maternal mortality in Indonesia is still dominated by three main causes, including bleeding, hypertension in pregnancy (HDK), and infection[2]. Pre-eclampsia is a disease with typical signs of high blood pressure (hypertension), tissue swelling (edema), and the discovery of a protein in the urine (proteinuria) arising from pregnancy. This disease generally occurs in the third trimester of pregnancy, but it can also occur in the second trimester of pregnancy[3].

[4]The incidence of hypertension in pregnancy is common, affecting about 7% of pregnancies in Canada that have a major effect on maternal, fetal, and newborn complications. For mild hypertension in pregnancy (systolic blood pressure 140-159 mm Hg and/or diastolic blood pressure 80-109 mm Hg. In developing countries, the incidence of preeclampsia ranges from 4-18%, mild pre-eclampsia occurs 75% and severe preeclampsia occurs 25%.

Pre-eclampsia can lead to maternal death, the occurrence of prematurity, and to intra-uterine growth retardation (IUGR) and still birth because preeclampsia-eclampsia will result in calcification in the placenta which then contributes to reduced food and oxygen intake to the fetus[5]. However, the etiology of preeclampsia is still uncertain[6].

**Methods**

This study is an analytical study with a cross-sectional approach. The population in this study were

pregnant women who examined pregnancy and had pre-eclampsia status at Bontoramba Health Center, Jeneponto District from January 2016 to June 2018 as many as 91 mothers from Puskesmas medical record data. The sampling technique used was purposive sampling to obtain a sample of 45 mothers with preeclampsia, with inclusion criteria: recorded having pre-eclampsia, blood pressure  $\geq 140$  mmHg/90 mmHg, proteinuria with 1 to 40 weeks' gestation. Research variables consist of age, education, occupation using a checklist format. Data were analyzed by univariate and bivariate using logistic regression.

## Results

### Univariate Analysis

The Distribution of Pre-eclampsia Frequency in the Working Area of Bontoramba Health Center based on the study, the result showed that the incidence of pre-eclampsia in the work area of Bontoramba Health Center in Jeneponto District in severe pre-eclampsia was 26 people (57.8%) and mild pre-eclampsia as many as 19 people (42.2%). Based on the description above, it can be seen the frequency distribution of the incidence of preeclampsia in the table below:

Table 1. Distribution of preeclampsia Occurrence Frequency in Work Areas Bontoramba Health Center Jeneponto Regency

Kategori	Frekuensi	Persentase
	(n)	(%)
The incidence of preeclampsia		
SeverePreeclampsia	26	57,8
MildPreeclampsia	19	42,2
amount	45	100,0

Source: Secondary Data, 2018

Based on the results of the study of the distribution of the frequency of age factors, education, and occupation in pregnant women with pre-eclampsia in the work area of Bontoramba Community Health Center, it is shown that in the group under 20 years of age were 7 people (15.6%), groups aged 20 to 35 years were as many as 18 people (40%), and groups over 35 years of age were 20 people (44.4%). In the group whose last elementary school education was 7 respondents (15.6%), the group with the last education of junior high school was 11 people (24.4%), the group with the last high school education was 20 people (44.4%), group the last education DII/DIII was 5 people (11.1%), and the group with the last DIV/S1 education was 2 people (4.4%). In the group that did not work were as many as 31 people (68.9%), the group that worked as honorary was 4 people (8.9%), the group that worked as an entrepreneur was 7 people (15.6%), and those who work as a civil servant is 3 people (6.7%).

Table 2. The distribution of Respondents based on Age Factors, Education, and Pregnant Women Work with Preeclampsia in the Work Area Bontoramba Health Center Jeneponto Regency

Category	Frequency	Percentage
	(n)	(%)
Age		
< 20 Year	7	15,6
20-35 Year	18	40,0
>35 Year	20	44,4
Amount	45	100,0
Education		
PS	7	15,6
JHS	11	24,4
SHS	20	44,4
DII/DIII	5	11,1
DIV/S1	2	4,4
Amount	45	100,0
Occupation		
Unemployment	31	68,9
Honorar	4	8,9
Wiraswasta	7	15,6
PNS	3	6,7
Amount	45	100,0

Source: Secondary Data, 2018

### Bivariate Analysis

The distribution of factors that influence the incidence of pre-eclampsia in the work area of Bontoramba Health Center in Jeneponto Regency

Table 3. Distribution of factors that influence the incidence of pre-eclampsia in the work area of Bontoramba Health Center in Jeneponto Regency

Category	Pre-eclampsia		p	OR	95%CI
	Severe n (%)	Mild n (%)			
Age					
< 20 dan >35	23 (88,5)	4 (21,1)	0,000	28,750	5,621 - 147,055
21- 34	3 (11,5)	15 (78,9)			
Amount	26 (100,0)	19 (100,0)			
Education					
< SHS	25 (96,2)	14 (73,7)	0,056	8,929	0,946 - 84,248
>SHS	1 (3,8)	5 (26,3)			
Amount	26 (100,0)	19 (100,0)			
Occupation					
No	6 (23,1)	8 (42,1)	0,178	2,424	0,668 - 8,799
Yes	20 (76,9)	11 (57,9)			
Amount	26 (100,0)	19 (100,0)			

Source: SecondaryData, 2018\*LogisticRegretion

Table 3 shows that age factors significantly affect the incidence of preeclampsia ( $0,000 > 0.05$ ). The magnitude of the risk factor for age is 28.750 times. The OR value does not include a value of 1, so the age factor is a risk factor for the incidence of preeclampsia. Educational factors did not significantly influence the incidence of pre-eclampsia ( $0.056 > 0.05$ ). The magnitude of the risk factor from education is 8,929 times. The OR value includes a value of 1, so education is not a risk factor for the incidence of preeclampsia in pregnant women. Job factors did not significantly influence the incidence of preeclampsia ( $0.178 > 0.05$ ). The magnitude of the risk factor for work is 2,424 times. OR values include a value of 1, so work is not a risk factor for the incidence of preeclampsia in pregnant women.

### Discussion

Analysis model of this study using logistic regression test. The study assessed the magnitude of the variables influencing factors namely age, education, and employment with the variable incidence of pre-eclampsia. Factor variables were considered to have a significant effect on the incidence of preeclampsia in pregnant women if  $p < 0,05$ . In contrast, factor variables were considered not to have a significant effect on the incidence of pre-eclampsia of pregnant women if  $p \geq \alpha$ .

The magnitude of the effect of factor variables can be assessed using the odds ratio (OR). OR values with a Confident interval range (CI) that does not include the number 1.0 can be expressed as significant at  $\alpha$  5% or are risk factors for preeclampsia. But if the CI range includes 1.0 then the results of the study are not statistically significant at  $\alpha$  5%.

Based on the results of the crosstab analysis, it shows that high-risk age groups range more than low-risk age. The results of this study are supported by the results of previous studies[7]. Showing that some respondents aged 28 until 35 years were 57%. This is in accordance with the condition of a healthy reproductive system for pregnancy and childbirth is the age of 20-35 years. Based on the results of the logistic regression test, the significance value showed that the age factor was a factor that influenced the incidence of preeclampsia ( $p = 0,000$ ).

Age greatly affects pregnancy and childbirth. Good age for pregnancy and childbirth between 20 - 35 years. At this age, female reproductive organs have developed and functioned optimally. In contrast to women under the age of 20 years or above 35 years, it is not good for pregnancy or childbirth, because pregnancy at this age has a high risk such as miscarriage, or failure of childbirth, that even cause death. Older women have a higher risk of childbirth complications than younger ones[8]. Women aged 35 years and over, due to weakened physical conditions, and can also cause health problems, such as high blood pressure, diabetes and various other diseases[9].

The results of this study indicate that mothers who were pregnant at the age of less than 20 years and above 35 years were 27 (60%) pregnant women. Age above 35 years and above is very vulnerable to stress, resulting in hypertension and preeclampsia.

The results of cross tab analysis, between pre-eclampsia and education, found that educational factors did not significantly affect the incidence of preeclampsia ( $0.056 > 0.05$ ) with a large 8.929-fold. This

is not in line with research conducted[10]. The level of education is also important to study because the level of education can affect a person's ability to receive information that given wrong the other information about pregnancy complications such as the incidence of preeclampsia. This matter can influence decision making in the event of preeclampsia pregnancy. In addition, the mother's work status is also important to study because work is associated with physical activity and stress is a risk factor for pre-eclampsia[11].

Adequate level of education will be easier in identifying stressors in themselves and outside a person. The level of education also influences awareness and understanding of stimulus. The level of education of a pregnant woman is influential in responding to something that comes, both internal and external. Pregnant women who have higher education will provide a more rational response than those who are not educated[6].

Based on statistical tests, it was found that high-risk groups based on their work were more prevalent in the mild pre-eclampsia group, namely as many as 8 pregnant women (42.1%). Based on table 4.5, it is shown that the significance value shows that the work factor does not significantly influence the incidence of pre-eclampsia ( $0.178 > 0.05$ ) with a 2.424-fold magnitude. This study was supported by Astuti (2015) who showed that the incidence of preeclampsia was dominated by a group of mothers who did not work, amounting to 63.5% and the majority of job variables obtained by mothers did not have a job with a value of  $P = 0.166$  which stated that there was no significant influence between work and incidence of preeclampsia. While different from the results of Indriani's research[12] which states that employment status has a significant effect on the incidence of preeclampsia with a  $P$  value of 0.000 and an OR value of 4.580, which means that mothers who work have a risk of 4.580 greater preeclampsia than mothers who do not work.

Stated that what can cause preeclampsia is one of the work of pregnant women or physical activity that is routinely carried out every day[10]. Improving the quality of life of pregnant women is very important, and one way that can be taken is to reduce the workload of women (pregnant women)[13].

## Conclusion and Suggestion

Age, education, and employment are at risk for the incidence of preeclampsia. Subsequent research involves social factors in a wider scope, culture in the prevention of pre preeclampsia. Thank you to the participants who were involved in this research. Hasnah and Faisal as researchers. Implementing International Nursing, Health Research Conference (INHRC).

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